

REMARKS/ARGUMENTS

This Amendment is being filed in response to the Office Action dated December 20, 2008. Reconsideration and allowance of the application in view of the remarks to follow are respectfully requested.

Claims 1-8 are pending in the Application.

The Office Action indicates that the oath or declaration is defective requiring a new oath or declaration since the oath or declaration does not state that the person making the oath or declaration acknowledges the duty to disclose to the Office all information known to the person to be material to patentability as defined in 37 CFR §1.56. A new oath or declaration is being obtained and will be filed upon receipt.

The abstract is objected to for certain informalities. In response, the prior Abstract has been deleted and substituted with a New Abstract which better conforms to U.S. practice. It is respectfully submitted that the New Abstract is in proper U.S. form and withdrawal of the objection is respectfully requested.

In the Office Action, claims 1-3, 6 and 7 are rejected under 35 U.S.C. §103(a) as allegedly being obvious over U.S. Patent No. 3,836,537 to Sastri ("Sastri") in view of U.S. Patent No. 5,776,615

to Wong ("Wong"). Claims 4-5 are rejected under 35 U.S.C. §103(a) as allegedly being obvious over Sastri in view of Wong in further view of U.S. Patent No. 3,838,512 to Sanderson ("Sanderson"). Claim 8 is rejected under 35 U.S.C. §103(a) as allegedly being obvious over Sastri in view of Wong in further view of U.S. Patent No. 5,142,785 to Grewal ("Grewal"). These rejections are respectfully traversed. It is respectfully submitted that claims 1-8 are allowable over Sastri in view of Wong alone and in view of any combination of Sanderson and Grewal for at least the following reasons.

Sastri shows a cutting tool having two 25 nm (250 Å) chromium layers deposited as layers over a metal substrate as a strengthening material (see, col. 5, lines 46-52). It is undisputed that (emphasis added) "Sastri does not disclose the coating comprising carbon, characterized in that the coating comprises a plurality of stacked pairs of layers, each pair comprising a first layer mainly comprising carbon and a second layer mainly comprising a metal, and each pair having a thickness between 1 and 10 nm." In fact as pointed out above, Sastri shows two 25 nm chromium layers. Wong is cited to cure the noted deficiencies in Sastri but it is respectfully submitted that

reliance on Wong is misplaced.

Wong shows a plurality of alternating layers of a carbon nitrogen compound over a metal compound seed layer. The carbon nitrogen compound is deposited in such a way that a crystalline carbon nitride compound is deposited over the metal compound layer (see, col. 8, lines 1-6). Metal compounds such as TiN, HfN, ZrN, NbN is suggested as are other compounds formed from a metal selected from group IIB, IIB, IVB, VB, VIB and VIIB metals, metalloids and transition metals of the Periodic Table (see, col. 8, lines 9-16). Wong further suggests that the layers may have a thickness of from between .5 to 100 nm (see, col. 4, lines 9-10) which as pointed out in the Office Action, overlaps claim 1 recited range of a thickness of between 1 and 10 nm (see, Office Action, page 4, second paragraph). Wong further discloses that the resultant composite material has a hardness that approaches the hardness of diamond thin films (see, col. 7, line 63 through col. 8, line 1).

It is respectfully submitted that the cutting member of claim 1 is not anticipated or made obvious by the teachings of Sastri in view of Wong. For example, Sastri in view of Wong does not disclose or suggest, a cutting member that amongst other patentable

elements, comprises (illustrative emphasis added) "a portion of the substrate including the cutting edge being provided with a coating comprising carbon, characterized in that the coating comprises a plurality of stacked pairs of layers, each pair comprising a first layer mainly comprising carbon and a second layer mainly comprising a metal, and each pair having a thickness between 1 and 10 nm" as recited in claim 1.

While Wong does show layers of a carbon nitride compound and a metal compound, it is respectfully submitted that Wong does not show a first layer mainly comprising carbon and a second layer mainly comprising a metal as recited in claim 1, since Wong teaches a carbon nitride compound and a metal compound. The benefit of the Applicants' current layered materials, mainly carbon and mainly a metal, is apparent in that Wong is merely able to achieve a hardness that approaches the hardness of a diamond film (see discussion above and col. 7, line 64 through col. 8, line 1) while the Applicants are able to achieve a hardness which is superior to that provided by a diamond film based on the composition of alternating layers of mainly carbon and mainly metal (see, present application, page 5, lines 2-14) as recited in claim 1.

Further, while it is admitted that Wong teaches alternating

layers, each having a combined thickness in a range of 0.5 - 100 nm thereby overlapping the thickness of between 1 and 10 nm as recited in claim 1, it is respectfully submitted that the range of between 1 and 10 nm is a critical range which leads to superior hardness as noted in the present patent application (see, present patent application, page 6, lines 7-10).

It has been held that a case of obviousness may be rebutted if the applicant can establish "the existence of unexpected properties in the range claimed ..." (In re Geisler, 43 USPQ 2d 1362, 1365 (Fed. Cir. 1997)). As this court has explained, "[o]ne way for a patent applicant to rebut a prima facie case of obviousness is to make a showing of 'unexpected results,' i.e., to show that the claimed invention exhibits some superior property or advantage that a person of ordinary skill in the relevant art would have found surprising or unexpected." In re Soni, 54 F.3d 746, 750, 34 USPQ 2d 1684, 1687 (Fed. Cir. 1995). When an applicant seeks to overcome a prima facie case of obviousness by showing improved performance in a range that is within or overlaps with a range disclosed in the prior art, the applicant must "show that the [claimed] range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range."

In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ 2d 1934, 1936 (Fed. Cir. 1990).

It is respectfully submitted that Applicants range achieves unexpected results in that Wong is merely able to achieve a hardness of the coating that approaches the hardness of a diamond film over the range while Applicants are able to achieve a hardness of the coating which is superior to that provided by a diamond film (see, discussion above).

Accordingly, as should be clear, Applicants' range is able to achieve substantially improved results over Sastri in view of Wong which is unexpected since Wong merely recites a hardness that approaches that of a diamond film while the present cutting member is able to achieve a result that is superior to diamond film. It is respectfully submitted that if Wong expected better results in a particular portion of the cited enormous range, Wong would have recited results better than merely approaching the hardness of diamond films.

Each of Sanderson and Grewal are introduced for allegedly showing elements of the dependent claims and as such, do nothing to cure the deficiencies of Sastri in view of Wong.

Based on the foregoing, the Applicants respectfully submit that claim 1 is patentable over Sastri in view of Wong and notice to this effect is earnestly solicited. Claims 2-8 depend from claim 1 and accordingly are allowable for at least this reason as well as for the separately patentable elements contained in each of the claims.

For example, Sastri in view of Wong does not disclose or suggest "the second layer [mainly] comprises Cr, each pair of layers having a thickness between 1.6 and 2.0 nm as recited in claim 3. As pointed out, Wong merely shows a metal compound and a layer thickness of between 0.5 and 100 nm. It is respectfully submitted that the Applicants range of thickness between 1.6 and 2.0 nm achieves unexpected results in that Wong is merely able to achieve a hardness of the coating that approaches the hardness of a diamond film over the range while Applicants are able to achieve a hardness of the coating that is "approximately four times the hardness of Cr" (see, page 6, lines 1-5).

Regarding claim 4 and 5 of the present application, it is undisputed that "Sastri in view of Wong et al. does not disclose a layer of Cr and a layer of CrN between the substrate and the layered pairs." (See, Office Action, page 5, numbered paragraph

11.) Sanderson is cited to cure the deficiencies in Sastri in view of Wong however, it is respectfully submitted that reliance on Sanderson is misplaced. Sanderson shows outer coating/layers of chromium and a nitride to improve the shaving characteristics of the blade (see, col. 7, lines 4-7, 21-31 and 50-54). In any event, Sanderson is clear that the chromium and nitride layers are deposited as a discrete coating in addition to an underlying metal layer (see, col. 1, lines 13-23). Claims 4 and 5 recite in substantial part that an implanted layer of Cr is utilized in a layer between the substrate and the pair of layers closest to the substrate. As should be clear, Sanderson does not show an implanted Cr layer nor does Sanderson show that the disclosed layer is positioned other than as an outer layer (e.g., not between the substrate and the pairs of other layers).

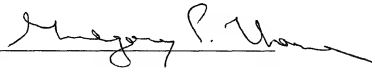
Accordingly, separate consideration of each of the dependent claims is respectfully requested.

In addition, Applicants deny any statement, position or averment of the Examiner that is not specifically addressed by the foregoing argument and response. Any rejections and/or points of argument not addressed would appear to be moot in view of the presented remarks. However, the Applicants reserve the right to

submit further arguments in support of the above stated position, should that become necessary. No arguments are waived and none of the Examiner's statements are conceded.

Applicants have made a diligent and sincere effort to place this application in condition for immediate allowance and notice to this effect is earnestly solicited.

Respectfully submitted,

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